



COMMUNITY DEVELOPMENT DEPARTMENT

Council Meeting Date: December 17, 2013
Staff Report #: 13-205

Agenda Item #: D-6

CONSENT CALENDAR: **Adopt a Resolution Approving the Water Supply Assessment for the Commonwealth Corporate Center Project**

RECOMMENDATION

Staff recommends that the City Council adopt a Resolution approving the Water Supply Assessment for the Commonwealth Corporate Center Project.

BACKGROUND

In 2002, Senate Bill 610 added Section 10910 to the California State Water Code requiring that the availability of water supplies be considered for larger development projects, including office complexes with more than 250,000 square feet of office space. The State Water Code requires that a water supply assessment analyze current and future water supplies as well as the current and project water demands within the utility's service area. If the assessment identifies deficiencies in the local water supplies, the water provider is required to identify measures to reduce water usage or to identify additional water supplies.

The State Water Code also requires that the governing body of the water provider approve the water supply assessment. Because the Commonwealth Corporate Center Project (Project) is located within the service area of the Menlo Park Municipal Water District (District), the City Council will need to review and approve the Water Supply Assessment for the Project. These requirements were subsequently added to Section 15155(b) of the Guidelines for the Implementation of the California Environmental Quality Act (CEQA Guidelines).

The Commonwealth Corporate Center Project is located between Jefferson Drive and Highway 101 and consists of the construction of two office buildings totaling 259,920 square feet on a 13.3 acre site immediately west of the Intuit facility located at 180 and 190 Jefferson Drive. The Project was presented to the Planning Commission and City Council at study sessions in August and December of 2012, respectively. The Project is expected to be considered by the Planning Commission and City Council in mid-2014. State Law requires that the Water Supply Assessment be approved prior to its inclusion in the Environmental Impact Report that is currently being prepared for the Project.

ANALYSIS

The Water Supply Assessment evaluates the demand for water and available water supplies over a 20 year period, in five year increments, starting in 2015 through 2035. According to the Water Supply Assessment, the Project will require an additional 21 acre feet per year (or 0.19 million gallons per day) of water, or about 0.55 percent of the total demand for water within the District. This additional demand includes a credit for the amount of water the two properties are already using.

The Water Supply Assessment concluded that the Project's anticipated demand falls within the amounts identified in the 2010 Urban Water Management Plan. Based on the most current land use proposals, including the Project and the updated Housing Element, it is estimated that there would still be adequate supply to meet the normal year and single dry year scenarios, as well as for the first year of a multiple year drought scenario (though not in the subsequent second and third years in the multiple dry year scenario). If a multiple dry year scenario occurs before 2015, it is projected that there could be a systemwide supply deficiency up to six percent in 2015. This increase in water demand is a result of the additional demands from the future implementation of the housing units identified in the updated Housing Element, not from implementation of the Commonwealth Corporate Center Project. After 2015, the combination of supply improvements and demand reductions result in sufficient supply under all hydrologic conditions through the year 2025. In 2030, it is estimated that demand could exceed supply by up to one percent with a four percent deficiency in the second and third years of a multiple dry year scenario in 2035. To deal with the with the Normal, Single Dry Year and Multiple Dry Year scenarios, the 2010 Urban Water Management Plan, "Section 5," describes the City's water shortage contingency and drought planning measures to reduce water use and conservation measures to mitigate these shortages.

The Water Supply Assessment identifies a number of programs or projects that could provide additional water supplies. The San Francisco Public Utilities Commission has an ongoing program of water supply improvement activities that are expected to be completed by 2030. These projects include improvements to existing dams, pipelines and aqueducts, and treatment facilities. Also the efforts of the Bay Area Water Supply and Conservation Agency may improve water supplies or availability beginning in 2018. Finally there is the Menlo Park Municipal Water District's local emergency supply project which is scheduled to be completed by 2020 that could provide additional water supplies for limited periods. While these measures could result in additional water supplies in the future, this WSA does not assume any water supply from these sources. A copy of the Water Supply Assessment report is included in Attachment B.

The City Council's action is limited to approving the Water Supply Assessment. The approval does not commit the City to approve the Commonwealth Corporate Center Project or certify the Environmental Impact Report when they are eventually considered by the Planning Commission and City Council. The Resolution approving the Water Supply Assessment is included in Attachment A. In approving the Resolution, the City Council is determining that based on the data and conclusions stated in the Water Supply Assessment, the 2010 Urban Water Management Plan, and the evidence and

testimony presented at the public meeting, that there is an adequate supply to provide water for the Project during normal, single dry year, and multiple dry years for at least a 20-year projection, and that actions have been identified that will help in addressing potential shortages in the supply in the future.

The following schedule highlights some of the key milestones in the City’s review process for the Commonwealth Corporate Center Project.

City Commission/City Council	Date	Purpose/Subject
City Council	12/17/2013	Consideration of Water Supply Assessment
Environmental Quality Commission	1/23/2014	Recommendation on Heritage Trees
Housing Commission	2/05/2014	Review of BMR Agreement
Planning Commission	1 st Qtr 2014	Review of Draft EIR
Planning Commission	Mid-2014	Recommendation on Final EIR and Project
City Council	Mid-2014	Consideration of Final EIR and Project, and Second Reading of Ordinance.

IMPACT ON CITY RESOURCES

The action on the Water Supply Assessment does not have a fiscal impact on the City. However, the Commonwealth Corporate Center Project will be required to prepare a fiscal impact analysis and that analysis will be part of the Planning Commission’s and City Council’s consideration of the Project.

POLICY ISSUES

There are no policy issues associate with this staff report.

ENVIRONMENTAL REVIEW

City approval of the Water Supply Assessment does not require review under the California Environmental Quality Act (CEQA). The Commonwealth Corporate Center Project, for which the Water Supply Assessment was prepared, will be evaluated for its environmental impacts in compliance with CEQA. The Environmental Impact Report (EIR) for the Project is currently being prepared to evaluate the effects of the Project on the environment. The EIR will be considered by the Planning Commission and City Council as the Project proceeds through the public hearing process.

PUBLIC NOTICE

Public Notification was achieved by posting the agenda, with this agenda item being listed, at least 72 hours prior to the meeting. Information on the project is also available at www.menlopark.org/projects/comdev_commonwealth.html.

ATTACHMENTS

- A. Resolution of the City Council of the City of Menlo Park Approving the Water Supply Assessment for the Commonwealth Corporate Center Project
- B. Water Supply Assessment for the Commonwealth Corporate Center

Report prepared by:
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Report Reviewed by:
Justin Murphy, Development Services Manager

Fernando G. Bravo, Engineering Services Manager

RESOLUTION NO. _____

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
MENLO PARK APPROVING THE WATER SUPPLY
ASSESSMENT FOR THE COMMONWEALTH
CORPORATE CENTER PROJECT**

WHEREAS, the City of Menlo Park, through the Menlo Park Municipal Water District is a public water supplier; and

WHEREAS, the City Council of the City of Menlo Park is the governing body of the Menlo Park Municipal Water District; and

WHEREAS, the City of Menlo Park approved and adopted an Urban Water Management Plan on June 14, 2011; and

WHEREAS, in 2002 the State of California enacted Senate Bill 610 adding Section 10910 et. seq. to the California Water Code; and

WHEREAS, the Guidelines for the Implementation of the California Environmental Quality Act ("CEQA Guidelines") were subsequently modified to incorporate similar provisions in Section 15155; and

WHEREAS, California Water Code Section 10910 and Section 15155 of the CEQA Guidelines require a water utility to prepare a water supply assessment for development applications for "water-demand projects" which include, but are not limited to, commercial office projects having more than 250,000 square feet of office space; and

WHEREAS, Section 10910(g) of the California Water Code and Section 15155(b) of the CEQA Guidelines require the governing body of a public water system that will serve a "water-demand project" to consider a water supply assessment at a regular or special meeting; and

WHEREAS, the Sobrato Organization submitted an application for a Rezone, Conditional Development Permit, and Tentative Parcel Map on March 7, 2012 for property located at 151 Commonwealth Drive and 164 Jefferson Drive (Project); and

WHEREAS, the Project consists of a request to construct two office buildings totaling 259,920 square feet on 13.3 acres; and

WHEREAS, the City required the applicant to contract for the preparation of a Water Supply Assessment for the Project; and

WHEREAS, the Water Supply Assessment for the Project was completed on October 24, 2013; and

WHEREAS, the Water Supply Assessment for the Project was provided to the City Council at a regularly scheduled meeting on December 17, 2013; and

NOW THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. Exhibit A. The Water Supply Assessment for the Commonwealth Corporate Center (Project WSA) identified in this resolution is incorporated as if fully set forth herein as Exhibit A of this resolution.
2. Approval of Project WSA. Based upon the data and conclusions set forth in the Water Supply Assessment, the Urban Water Management Plan, and the evidence and testimony presented at the public meeting, the City Council hereby finds the City has an adequate supply to provide water for the Project during normal, single dry year, and multiple dry years for at least a 20-year projection, and has identified actions that will help in addressing potential shortages in supply in the future. As a result, the City Council hereby approves the Water Supply Assessment for the Commonwealth Corporate Center.
3. No Obligation to Act on the Project Applications. The City Council's approval of the Project WSA is limited to approving the Water Supply Assessment; approving the Project WSA does not approve any of the Project applications. Nothing in this resolution or the Council's approval of the Project WSA shall be construed as requiring the City or its Council to consider, act on, approve, conditionally approve, deny, or take any other action on the Project applications.
4. Effective Date. This resolution shall become effective immediately.

I, Pamela Aguilar, City Clerk of Menlo Park, do hereby certify that the above and foregoing Council Resolution was duly and regularly passed and adopted at a meeting by said Council on this seventeenth day of December, 2013, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Official Seal of said City on this 17th day of December, 2013.

Pamela Aguilar
City Clerk

ATTACHMENT B

**WATER SUPPLY ASSESSMENT FOR
THE COMMONWEALTH CORPORATE CENTER**

Menlo Park Municipal Water District

Water Supply Assessment for the City of Menlo Park Commonwealth Corporate Center Project

GHD
10/24/2013

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Appendix D – Cal Green Model Worksheet

Key Acronyms and Abbreviations

ABAG	Association of Bay Area Governments	IWSAP	Interim Water Shortage Allocation Plan
ACDD	Alameda Creek Diversion Dam	MFR	Multi-Family Residential
AFY	Acre-feet per year	MGD	Million gallons per day
BAWSCA	Bay Area Water Supply and Conservation Agency	MID	Modesto Irrigation District
BAWSCA Strategy	Long-Term Reliable Water Supply Strategy	MOU	Memorandum of Understanding
BMP	Best Management Practice	MPMWD	Menlo Park Municipal Water District
CEQA	California Environmental Quality Act	NOP	Notice of Preparation
CII	Commercial, Industrial and Institutional	PEIR	Programmatic Environmental Impact Report
City	City of Menlo Park	Project	Commonwealth Corporate Center Project
Commission	SFPUC's five member governing commission	RWS	Regional Water System
CUWCC	California Urban Water Conservation Council	SB 610	Senate Bill 610
DMM	Demand Management Measure	SBx7-7	Water Conservation Act of 2009
DPH	California Department of Public Health	SFPUC	San Francisco Public Utilities Commission
DSS Model	Demand Side Management Least Cost Planning Decision Support System	SFR	Single Family Residential
EIR	Environmental Impact Report	TID	Turlock Irrigation District
ETo	Evapo-transpiration of common turf grass	UACFG	Upper Alameda Creek Filter Gallery
ETWU	Estimated Total Water Use	UWMP	Urban Water Management Plan
gpcd	gallons per capita per day	WCIP	Water Conservation Implementation Plan
GPM	Gallons per minute	WSA	Water Supply Assessment
ISA	Interim Supply Allocation	WSAP	Water Shortage Allocation Plan
ISG	Individual Supply Guarantee	WSIP	Water System Improvement Program
ISL	Interim Supply Limitation		

1 Introduction

This Water Supply Assessment (WSA) has been prepared to assist the City of Menlo Park (City) in satisfying the requirements of Water Code Section 10910 et. seq. - Water Supply Planning to Support Existing & Future Uses.

The Menlo Park Municipal Water District (MPMWD) is a water supplier for a portion of the City. The Sobrato Organization has submitted a development application for a project known as the Commonwealth Corporate Center (Project). The City is the lead agency under the California Environmental Quality Act (CEQA). Both CEQA and the California Water Code require a lead agency to consider water supply and demand as part of the development review process.

1.1 Requirements for a WSA

The requirement to prepare a WSA was established in 2002 by State Senate Bill (SB) 610, which emphasizes the interrelationships between land use and water supply planning, and requires the incorporation of water supply and demand analysis at the earliest possible stage in the land use planning process. The stated intent of SB 610 is to strengthen the process by which local agencies determine the adequacy and sufficiency of current and future water supplies to meet current and future demands.

SB 610 amended the California Public Resources Code to incorporate Water Code findings within the CEQA process for certain types of projects. SB 610 added Water Code Sections 10910, 10911, 10912, 10913, and 10915 (Water Supply Planning to Support Existing and Planned Future Uses), which describe when a WSA needs to be prepared and the required elements of that WSA. The WSA is then used as an informational document to support the CEQA process. SB 610 also amended Water Code Section 10631 (the Urban Water Management Planning Act) to create a clear relationship between an agency's Urban Water Management Plan (UWMP) and subsequent WSAs and to allow the UWMP to serve as a foundational document for the analysis in the WSA.

Water Code Section 10910 et. seq. defines the "projects" that require a WSA and the lead agency's responsibilities related to the WSA. A WSA is required for:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use development that includes one or more of the uses described above;

- A development that would demand an amount of water equivalent to or greater than the amount of water required by a 500-dwelling-unit project; and
- For lead agencies with fewer than 5,000 water service connections, any new development that will increase the number of water service connections in the service area by 10 percent or more.

A WSA must provide:

- a description of all relevant water supply entitlements, water rights, and/or water contracts;
- a description of the available water supplies, in normal, dry and multiple dry years, and the infrastructure, either existing or proposed, to deliver the water; and
- an analysis of the demand placed on those supplies, by the project, and relevant existing and planned future uses in the area for at least a 20-year period.

The lead agency may incorporate the water suppliers' UWMP by reference, if the supplier included the proposed development's demands in the UWMP.

While water supply is clearly an important consideration in approval of a development, nothing in SB 610 prevents a lead agency from approving a proposed project even in the face of information concluding that there is not sufficient water supply for build-out of the project. However, where the description of existing water supply entitlements, water rights, and/or water contracts shows insufficient water supplies to serve the proposed project, as well as existing and planned uses over the 20-year planning horizon, additional information is required to describe how and where sufficient supplies may be obtained. Such information must include the estimated costs, financing methods, and regulatory approvals needed to obtain new supplies, as well as a projected time frame for obtaining them.

1.2 Summary of the Project

This WSA considers the Project, which proposes to replace 237,858 square feet of warehouse, manufacturing, and light industrial uses with 259,920 square feet of office space that can accommodate office, biotech, and/or research and development (R&D) uses. The proposed development is located in the MPMWD service area. Because the Project will result in more than 250,000 square feet of commercial development, it requires preparation of a WSA. The WSA will be based on MPMWD's 2010 UWMP, and take into account additional newer information that was developed for the Facebook Campus Project and the Housing Element Update WSAs.

The Project proposes to redevelop two parcels located adjacent to each other at 151 Commonwealth Drive and 164 Jefferson Drive. The Commonwealth Drive site is approximately 12.1 acres, and the Jefferson Site, which is directly adjacent to the Commonwealth Drive site to the north, is approximately 1.17 acres. The Project includes a tentative parcel map to create separate parcels for each building, and one common lot. The overall project site is approximately 13.3 acres. Proposed redevelopment of the properties would include demolition of a single-story industrial building and associated structures totaling approximately 217,396 square feet on the Commonwealth Drive site, and demolition of the

existing structure totaling approximately 20,462 square feet and associated improvements on the Jefferson Drive site.¹

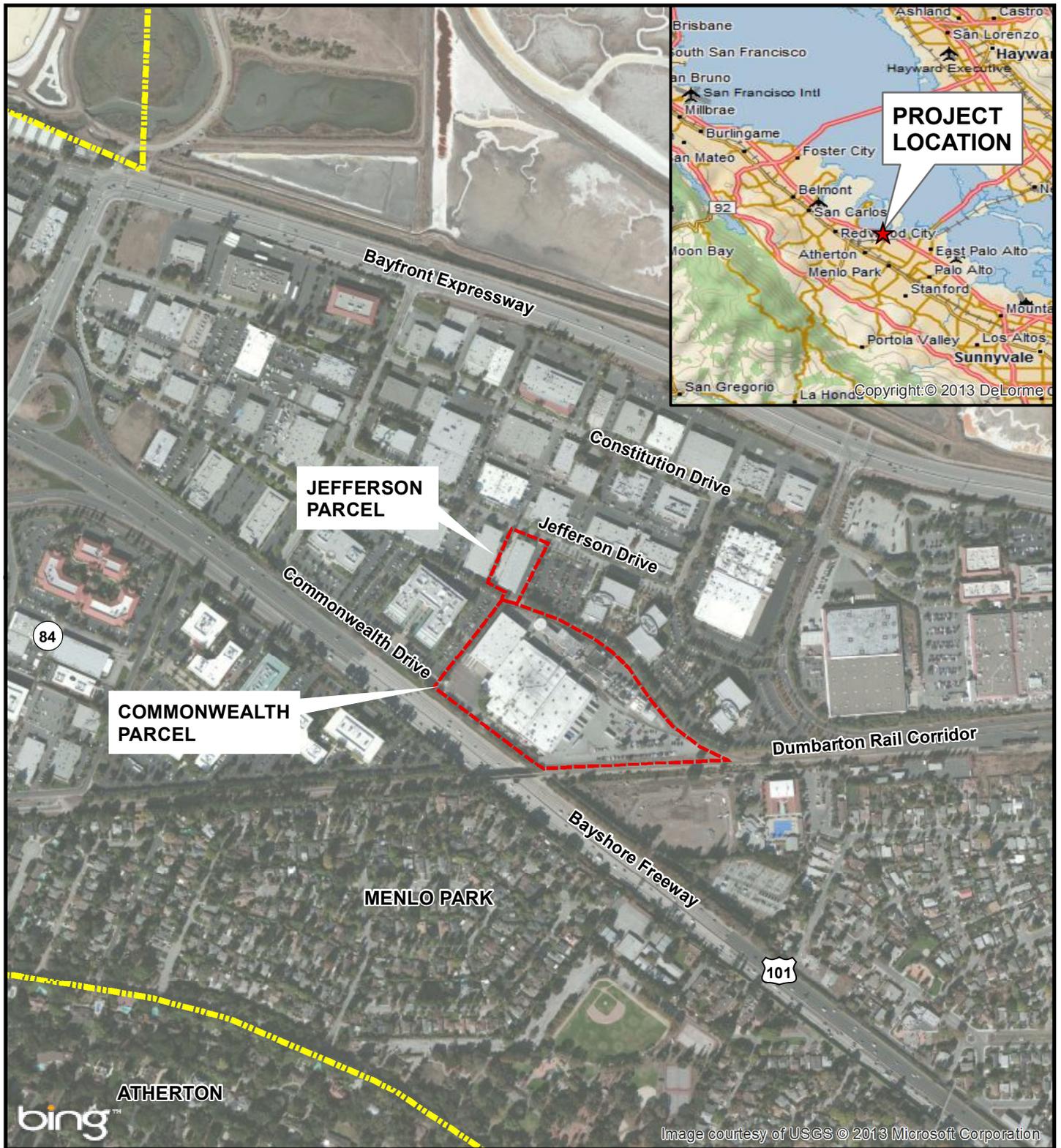
The Project plans specify that the Jefferson Drive parcel would be utilized as an employee rest and recreation area, as well as for site access. The Jefferson parcel would be landscaped and therefore would require irrigation.

The proposed development would require the following approvals:

- Tentative Parcel Map to create parcels for each building and one common lot;
- Rezoning: The proposed height of the buildings would exceed the 35-foot maximum height limit in the M-2 (General Industrial) zoning district and a rezone to M-2(X) (General Industrial, Conditional Development District) plus approval of a Conditional Development Permit would be required to exceed the height limit;
- Heritage Tree Removal Permits: As part of the development proposal, the applicant is requesting approval to remove 12 heritage trees on the 151 Commonwealth Drive site and 11 heritage trees on the 164 Jefferson site; and
- Below Market Rate Housing Agreement for the payment of in-lieu fees associated with the City's Below Market Rate Housing Program

The Project location is illustrated in Figure 1.1.

¹ Source: City of Menlo Park website.



LEGEND

-  Site Boundary
-  Menlo Park City Limits

Paper Size 8.5" x 11" (ANSI A)
 0 200 400 600
 Feet
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California III FIPS 0403 Feet



City of Menlo Park
 Commonwealth Corporate Center WSA

Job Number 8410 654
 Revision A
 Date 19 Jul 2013

Site Map

Figure 1

1.3 Scope of Analysis

This WSA describes the relationship between the water demands associated with the Project in the MPMWD's service area and the availability of water supply under different climatic conditions. This WSA has been prepared to assist the City in evaluating the impacts of the Project on the water supply.

Specifically, this WSA:

- Provides information on MPMWD's water supply that is consistent with Water Code Sections 10620 et. seq. (the Urban Water Management Act) and 10910 et. seq. (Water Supply Planning to Support Existing and Planned Future Uses);
- Provides information on current water demands of the two lots to be developed and projected water demands based on the applicant's proposed redevelopment plan;
- Compares the Project demands to demand projections outlined in the 2010 UWMP; and
- Compares water supplies and water demands for the normal, single dry, and multiple dry years.

1.3.1 Urban Water Management Plan

On June 14, 2011, MPMWD adopted its "2010 UWMP". The UWMP, which is incorporated by reference, can be found at http://www.menlopark.org/departments/pwk/MP_2010_UWMP_Final.pdf.

The UWMP conforms to the requirements of the Urban Water Management Planning Act and includes:

- A description of the water service area including climate, current and projected population and other demographic factors that affect water management planning;
- A description and quantification of the existing and planned water sources;
- A description of the reliability and vulnerability of the water supply to seasonal or climatic shortages in the average water year, single dry water year, and multiple dry water year;
- Contingency plans including demand management and conjunctive use potential;
- A description of current and projected water demands among all user classes in 5-year increments;
- A description of all water supply projects and water supply programs that may be undertaken by MPMWD, its wholesale supplier the San Francisco Public Utilities Commission (SFPUC) and its regional representative, the Bay Area Water Supply and Conservation Agency (BAWSCA).

In order to comply with the requirements of the Water Conservation Act of 2009 (SBx7-7) the 2010 UWMP includes a "baseline" water use and water use targets for 2015 and 2020. These targets, which are expressed as water use in gallons per capita per day (gpcd) will be used to measure each water suppliers' compliance with SBx7-7. SBx7-7 requires suppliers to reduce per capita water use by 20 percent from the baseline by 2020.

The targets, which are discussed in Chapter 4 of this WSA, are intended to increase water use efficiency throughout the state.

1.3.2 Previous Water Supply Analyses

MPMWD's supply and demand relationship has been carefully studied. Work includes the 2010 UWMP and three previous WSAs which are described below.

Menlo Gateway WSA (2009): The Menlo Gateway WSA was prepared to support a 2009 Environmental Impact Report (EIR) for a 15.9 acre mixed-use project in the MPMWD service area. This WSA predated MPMWD's 2010 UWMP and the demands documented in the Menlo Gateway WSA were included in MPMWD's 2010 UWMP.

2010 UWMP (2011): The 2010 UWMP reviewed the City's water supply and demand balance based on projections of limited residential growth and ongoing growth and redevelopment in the Commercial, Institutional and Industrial (CII) sector. The 2010 UWMP also took into account the demand reductions required by SB7x7. The 2010 UWMP concluded that MPMWD could experience shortages of up to four percent in multiple dry years before 2015. After 2015, the combination of supply improvements and demand reductions is expected to result in an adequate supply until at least 2035, when modest shortages of one percent may occur in dry years. The UWMP documented that the City has an established Drought Contingency Plan that allows it take action to reduce demand by as much as 50 percent, which would allow it to manage the modest projected shortages.

Menlo Park Facebook Campus Project WSA (2011): The WSA for the Menlo Park Facebook Campus Project was completed in November 2011 to support an EIR for the redevelopment of two sites, totaling 79 acres, for a corporate campus in the MPMWD's service area. This WSA was developed after the completion of MPMWD's 2010 UWMP, but it concluded that the planned demands were consistent with and included in the non-residential demand allowance projected in the 2010 UWMP.

City of Menlo Park Housing Element Update WSA (2013): The WSA for the City's proposed Housing Element Update was completed in March 2013 to support the proposed Housing Element Update for the City. There are two water suppliers within the City limits, MPMWD and Cal Water and this WSA reviewed the impacts on both water suppliers. The City's Housing Element Update Project proposed to accommodate up to 1,318 new dwelling units within the City by 2035. The demands from the proposed Housing Element Update had not been included in the 2010 UWMP and resulted in an increase in the water demands projected in MPMWD's 2010 UWMP. In terms of the MPMWD's service area, the WSA analysis concluded that even with the increased dwelling units as proposed by the planned Housing Element Update, supply is expected to exceed demand in normal weather years and in single dry weather years.

In multiple dry year scenarios, the additional demand slightly increases the shortages projected in the 2010 UWMP. Specifically, the potential multiple dry year shortage, if it were to occur before 2015, increases from four percent to six percent. After 2015, it is expected that water supply improvements and demand reduction programs will have eliminated that shortage until after 2025. By 2030 there could be a water shortage of up to one percent during multiple dry year scenarios, which could grow to four percent by 2035. This compares to the 2010 UWMP projections that supply will be adequate under all hydrologic conditions until after 2030. As described above, the City has a Drought Contingency Plan

which could be implemented during a drought or other water shortage emergency. This Drought Contingency Plan contains actions which could reduce water demand by 50 percent. Implementation of the Drought Contingency Plan would mitigate the potential four to six percent water shortages in multiple dry year scenarios.

1.4 Structure of this Report

This report is structured to facilitate the presentation of information required by the Water Code and to outline the analysis necessary to evaluate the sufficiency of water supply to meet planned growth.

- Chapter 1 provides an overview of the legal requirements for the WSA and describes the Project that is covered by this WSA.
- Chapter 2 describes the MPMWD's water service area.
- Chapter 3 describes the MPMWD's current wholesale water supply from SFPUC and other supply planning activities that are being undertaken by the MPMWD and its regional representative BAWSCA. The chapter includes discussions of the contractual supply arrangements and the reliability of the water supply in normal, single dry, and multiple dry years.
- Chapter 4 describes current and future water demands based on planned growth, including the Project, and accounting for the 2015 and 2020 water use targets which were adopted with the 2010 UWMP.
- Chapter 5 provides an overview of the overall supply sufficiency by comparing projected water demands to available supplies. In order to support the CEQA document for the Project, this chapter includes a discussion of the projects and permits necessary to make the water supply available.

Table 1.1 provides an index of the requirements for WSAs and the location of each required discussion in this report.

Table 1.1 – Index of SB 610 Requirements

Required Element	Location in Documents
Description of Service Area	Section 2.0
Population Projections in 5-year Increments	Table 2.1
Description and Quantification of Water Supplies	Section 3.0
Description of Supply Reliability to Climate Conditions	Section 3.1.4
Description of Contingency Plans	*
Description of Demand Management Potential	Section 4.5
Projection of Water Demands in 5-year Increments	Tables 4.1 and 4.5-4.10
Description of Projects & Programs Undertaken to Meet Demands	Section 5.2
Description of Demand Management Measures Employed	Section 4.5
Determination of Supply Sufficiency under Normal, Single & Multiple Dry Years	Table 5.1, 5.2, 5.3
Identification of Water Supply Entitlements & Rights and water received under rights	Section 3.1
Information related to capital outlay programs for financing delivery of water supply	Section 5.2
Information on permits needed and regulatory requirements associated with water supply	Section 5.3

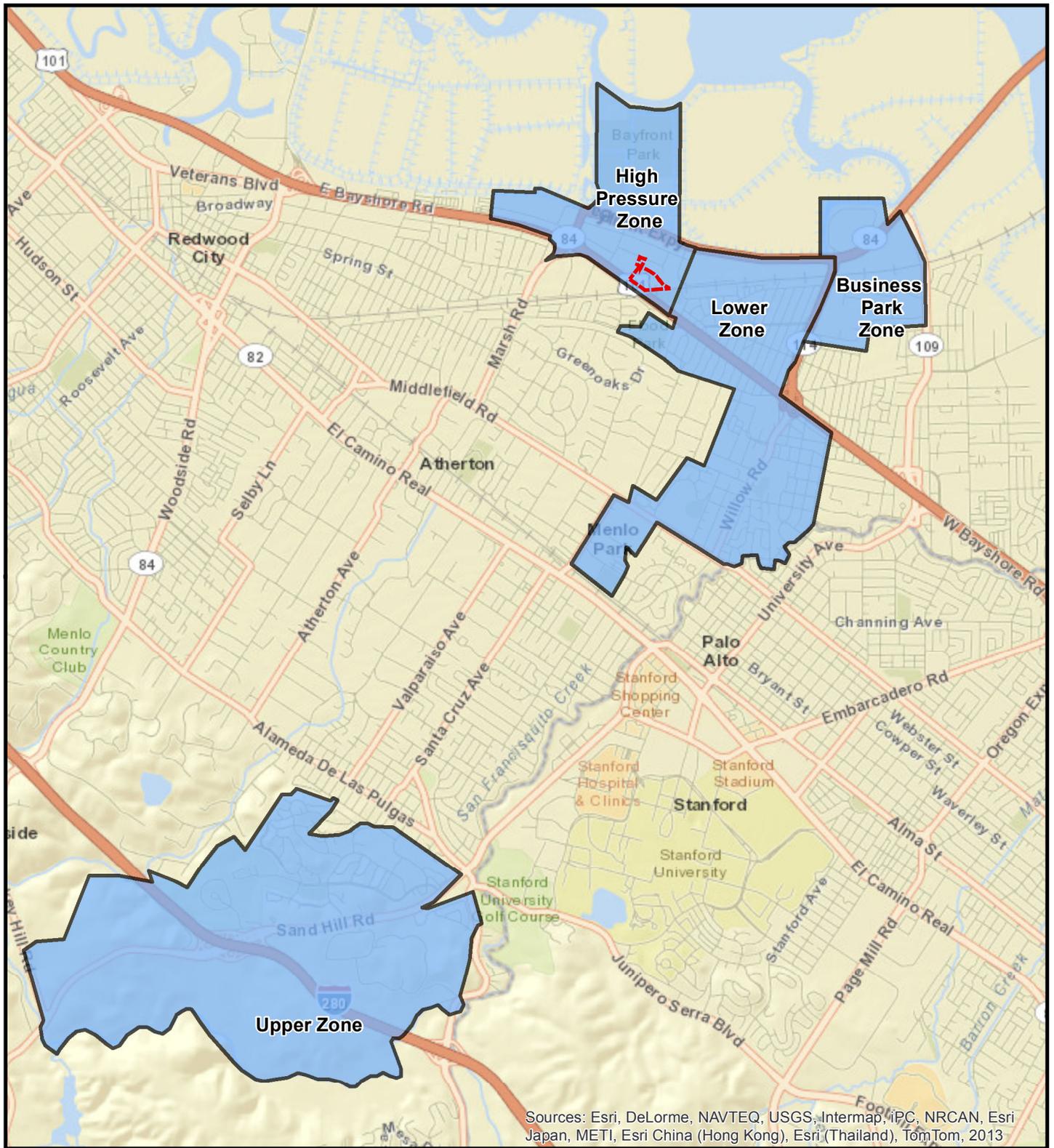
* Contingency Planning Discussion incorporates Menlo Park Municipal Water District's 2010 Urban Water Management Plan as allowed by SB 610

2 Water Service Area

The City is located in the San Francisco Bay Area, in San Mateo County, approximately halfway between San Francisco and San Jose. The City is bordered by the Town of Atherton and Redwood City to the north, East Palo Alto to the east, Woodside to the west, and Palo Alto and Portola Valley to the south. The City covers approximately 18 square miles, of which approximately 12 square miles consist of San Francisco Bay and wetlands. The City reports its 2012 population as 32,513 people. There are 12,388 households in Menlo Park, with an average household size of 2.55 people.²

The City is served by two primary water purveyors, MPMWD and Cal Water. The Project would be served by MPMWD only. Figure 2 illustrates the service area of each utility.

² State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011 and 2012, with 2010 Benchmark. Sacramento, California, May 2012.



LEGEND

-  Project Site
-  Service Zones

Paper Size 8.5" x 11" (ANSI A)
 0 0.5 1
 Miles
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



City of Menlo Park
 Commonwealth Corporate Center WSA

Job Number 8410 654
 Revision A
 Date 19 Jul 2013

MPMWD
 Water Service Boundaries

Figure 2

MPMWD's service area includes approximately 40 percent of the City's population and is divided into four zones:

- The Lower Zone is located north and east of El Camino Real and serves primarily residential and small commercial land uses. The zone includes the Belle Haven, Bay Road, and Willows neighborhoods.
- The High Pressure Zone is located in northern Menlo Park between Highway 101 and the Bayfront Expressway and serves primarily industrial land uses. It includes the Bohannon Industrial Park and TE Connectivity properties. The high pressure zone is hydraulically disconnected from the other zones. Inter-ties can be installed with pressure reducing valves if necessary.
- The Upper Pressure Zone is located in western Menlo Park and is geographically and hydraulically disconnected from other zones. It serves primarily the residential Sharon Heights neighborhood, the Sharon Heights Golf Course and the SLAC National Accelerator Lab.
- The Business Park Zone is located along O'Brien Drive between Willow Road and University Avenue. It serves primarily light industrial land uses.

2.1 Population

The City is essentially built-out and future population growth is assumed to be associated with redevelopment projects within the existing urban footprint, such as those anticipated by the Housing Element Update. The United States Census has reported the City's 2000 population as 30,781 persons and its 2010 population as 32,077 persons. As noted above, the City reports its 2012 population at 32,513 persons.

2.1.1 Comparison to 2010 UWMPs

The City's population is covered in two 2010 UWMPs:

- MPMWD's UWMP, which covers a portion of the City, and
- Cal Water's UWMP which covers its Bear Gulch District, a service area much larger than the City.

In its 2010 UWMP, MPMWD estimated its 2010 service population was 14,198 (about 40 percent of the total City population). This population figure was used to establish MPMWD's water use targets. Total projected water demand was calculated based on projections of both residential and non-residential growth. MPMWD's demand projections assumed a very modest residential growth rate of 0.42 percent annually and a strong growth in the CII sectors. The 2010 UWMP explicitly included estimates for near term, largely commercial development projects including:

- Menlo Gateway (the Bohannon Project) for which the City has an approved WSA;
- GM Site – Facebook Campus Project (inclusive of the East and West Campuses) for which the City has an approved WSA;
- Business Park, which is included within the general non-residential growth analysis; and
- Hamilton Avenue East, which is included within the general residential growth allowance and which is one of the 14 developments that are the subject of the Housing Element Project's WSA.

The remaining residential growth contemplated by the Housing Element Project was not specifically planned for in MPMWD’s 2010 UWMP. That remaining projected residential growth was addressed in the Housing Element Project’s WSA.

2.1.2 Population Used in this WSA

Because of the different service area limits, the UWMPs do not provide for straight forward projection of the City’s projected population. However, other City and regional planning documents do provide projections about planned growth in the City as a whole. Table 2.1 illustrates population projections for the MPMWD’s service area based on projections from the Association of Bay Area Governments (ABAG).

Table 2.1 – Population – Current and Projected

	2010	2015	2020	2025	2030	2035	Data Source
Service Area Population *	14,198	14,438	14,774	15,086	15,406	15,675	Census Data for base population and regional growth projections applied

* Service area population includes only the population served by the distribution system. The City’s total population is over 32,000.

These projections equate to an annual growth rate of 0.8 percent, which is higher than the projections in MPMWD’s UWMP. This likely reflects the fact that at least some of the growth anticipated by ABAG and the proposed Housing Element Update was not included in the UWMP projections.

2.2 Climate

The Project area has a Mediterranean climate characterized by cool, wet winters and warm, dry summers. Rainfall averages 15.2 inches per year (measured at Palo Alto) and is generally concentrated in the wet season from late October to early May. Table 2.2 presents the base climate data for the City, which is brought forward from MPMWD’s UWMP.

Table 2.2 – Climate

	Standard average ETo*, in	Average rainfall, in	Average temperature, °F
January	1.48	3.23	48.1
February	1.88	2.88	51.3
March	3.35	2.22	53.7
April	4.74	0.99	56.6
May	5.36	0.37	60.7
June	6.25	0.08	65.0
July	6.74	0.02	66.5
August	5.99	0.05	66.6
September	4.52	0.18	65.5
October	3.43	0.71	60.6
November	1.82	1.86	53.5
December	1.48	2.69	48.1
Annual	47.04	15.28	58.0

* ETo, or evapotranspiration, is the loss of water from evaporation and transpiration from plants.

Rain and temperature values from Palo Alto CA NOAA Station #046646 over 1951 to 2004

Evapotranspiration values are from Union City CIMIS station # 171

3 Water Supply

This section provides an overview of the water supplies for MPMWD. The City and County of San Francisco’s Regional Water System (RWS), operated by the SFPUC, is the major water supply source for the MPMWD. The RWS supplies 26 wholesale customers as well as the City and County of San Francisco. The “Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County, and Santa Clara County” (“2009 Water Supply Agreement”) governs this relationship. The most recent supply allocation document developed under the 2009 Water Supply Agreement is included in Appendix A.

MPMWD is actively working to develop a groundwater supply that will add emergency reliability to its overall supply portfolio. Table 3.1 provides a summary of existing and planned water supply sources in acre-feet per year (AFY), as outlined in the UWMP for MPMWD. Supply is discussed in detail below.

Table 3.1 – MPMWD Wholesale Supplies – Existing and Planned Sources of Water (AFY)

Wholesale Sources	Contracted Volume	2015	2020	2025	2030
San Francisco Public Utilities Commission*	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
BAWSCA Long Term Strategy	-	-	-	-	-
Groundwater Supplies**	-	-	-	-	-
Totals	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0

*From Appendix A to the Agreement for Water Supply between San Francisco PUC and Wholesale Customers, dated July 2009.

** Groundwater will be developed as an "emergency supply" in accordance with California Department of Public Health requirements which means the supply can be used for five consecutive days and no more than 15 days total in a year.

3.1 San Francisco Public Utilities Commission Regional System

The SFPUC RWS is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. The amount of imported water available to the SFPUC’s retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir storage to firm-up its water supplies.

The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy. In practice, the local watershed facilities are operated to capture local runoff.

3.1.1 Water System Improvement Plan

In order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC has undertaken the

Water System Improvement Program (WSIP), approved October 31, 2008. The WSIP will deliver capital improvements aimed at enhancing the SFPUC's ability to meet its water service mission of providing high quality water to customers in a reliable, affordable and environmentally sustainable manner. The WSIP includes a total delivery reliability goal of 265 million gallons per day (MGD) of supply with no greater than 20 percent rationing in any one year of a drought.

In approving the WSIP, SFPUC's five-member governing commission (Commission) adopted a Phased WSIP Variant for water supply that was analyzed in its CEQA document. This Phased WSIP Variant established a mid-term water supply planning milestone of 2018 when the Commission is scheduled to reevaluate water demands through 2030. At the same meeting, the Commission also imposed the Interim Supply Limitation (ISL), which limits the volume of water that the member agencies and San Francisco can collectively purchase from the RWS to 265 MGD, until at least 2018. Although the Phased WSIP Variant included this mid-term water supply planning milestone, it also included full implementation of all proposed WSIP improvement projects to insure that the public health, seismic safety, and delivery reliability goals were achieved as soon as possible.

According to the WSIP Regional Projects Quarterly Report for the third quarter of 2012-13, planning, environmental, design, and construction activities are at 99.9 percent, 94.7 percent, 95.7, and 68.6 percent complete, respectively.

3.1.2 2009 Water Supply Agreement

The business relationship between San Francisco and its wholesale customers is largely defined by the 2009 Water Supply Agreement, which replaced the Settlement Agreement and Master Water Sales Contract that expired in June 2009. The 2009 Water Supply Agreement addresses the rate-making methodology used by San Francisco in setting wholesale water rates for its wholesale customers, and water supply and water shortages for the RWS. The 2009 Water Supply Agreement has a 25-year term and is supplemented by Individual Water Supply Contracts.

As described above, the approved WSIP includes an ISL, to limit sales from the San Francisco RWS watersheds to an annual average of 265 MGD through 2018. The 2009 Water Supply Agreement provides for a 184 MGD "Supply Assurance" (expressed on an annual average basis) to SFPUC's wholesale customers and an 81 MGD "Supply Assurance" to San Francisco. These assurances are subject to reduction, to the extent and for the period made necessary by reason of water shortage, due to drought, emergencies, or by malfunctioning or rehabilitation of the RWS. Although the wholesale customers did not agree to the ISL, the 2009 Water Supply Agreement provides a framework for administering the ISL, which is discussed below.

3.1.2.1 Individual Supply Guarantees

MPMWD's Individual Supply Guarantee (ISG), as described in the 2009 Water Supply Agreement and its contract, is 4.465 MGD (or approximately 4,993 AFY).

Although the 2009 Water Supply Agreement and accompanying Water Supply Contracts expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives its expiration and continues indefinitely.

The 2010 UWMP provides additional discussion on the supply contracts.

3.1.2.2 Interim Supply Allocations

The Interim Supply Allocations (ISAs) refer to each individual wholesale customer's share of the ISL. On December 14, 2010, the Commission established each agency's ISA through 2018. In general, the Commission based the allocations on the lesser of the projected fiscal year 2017-18 purchase projections or the ISGs. The ISA's are effective only until December 31, 2018, and do not affect the Supply Assurance or the ISGs.

MPMWD's ISA is 4.1 MGD or approximately 4,590 AFY.

As stated in the Agreement, the wholesale customers do not concede the legality of some of the Commission's actions, including establishment of the ISA, and expressly retain the right to challenge these provisions, if and when imposed, in a court of competent jurisdiction.

3.1.3 Water Shortage Allocation Plan

The 2009 Water Supply Agreement includes a Water Shortage Allocation Plan (WSAP) that addresses shortages of up to 20 percent of system-wide use. The Tier One Shortage Plan allocates water from the RWS between San Francisco and the wholesale customers, during system-wide shortages of 20 percent or less. The WSAP also anticipated a Tier Two Shortage Plan, adopted by the wholesale customers, which would allocate the available water from the RWS among the wholesale customers.

3.1.3.1 Tier One Drought Allocations

The Tier One Shortage Plan replaced the prior Interim Water Shortage Allocation Plan (IWSAP), adopted in 2000, which also allocated water for shortages up to 20 percent. The Tier One Plan also allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. In addition, water "banked" by a wholesale customer, through reductions in usage greater than required, may also be transferred. Table 3.2 illustrates the Tier One Plan Allocations.

Table 3.2 – Tier 1 Drought Reductions

Level of System Wide Reduction in Water Use Required	Share Available	
	SFPUC Share	Wholesale Customers Share
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%

The Tier One Plan will expire in 2034 at the end of the term of the Agreement, unless extended by SFPUC and the wholesale customers.

3.1.3.2 Tier Two Drought Allocations

The wholesale customers have negotiated and adopted the Tier Two Plan, the second component of the WSAP, which allocates the collective wholesale customer share among each of the 26 wholesale customers. This Tier Two allocation is based on a formula that takes multiple factors for each wholesale customer into account, including:

- The ISG;
- Seasonal use of all available water supplies; and
- Residential per capita use.

The water made available to the wholesale customers collectively, will be allocated among them in proportion to each wholesale customer’s Allocation Basis, expressed in MGD, which in turn is the weighted average of two components:

1. The wholesale customer’s ISG that is fixed and stated in the Agreement;
2. The Base/Seasonal Component, which is variable and calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the wholesale customers for all available water supplies.

The second component is accorded twice the weight of the first fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain wholesale customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all wholesale customers’ Allocation Bases to determine each wholesale customer’s Allocation Factor. The final shortage allocation for each wholesale customer is determined by multiplying the amount of water available to the wholesale customers collectively under the Tier One Plan, by the wholesale customer’s Allocation Factor.

The Tier Two Plan requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the wholesale customers change their water

use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each wholesale customer will also change. However, for long-term planning purposes, each wholesale customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted. The Tier Two Plan will expire in 2018 unless extended by the wholesale customers.

3.1.4 Reliability of the Regional Water System

The SFPUC has historically met demand in its service area in all year types from its watersheds, including the Tuolumne River, the Alameda Creek, and the San Mateo County watersheds. In general, 85 percent of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15 percent comes from the local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos, and San Andreas Reservoirs. The adopted WSIP retains this mix of water supply for all year types.

The WSIP includes the following water supply projects to meet dry-year demands, with no greater than 20 percent system-wide rationing in any one year:

- Restoration of Calaveras Reservoir capacity
- Restoration of Crystal Springs Reservoir capacity
- Westside Basin Groundwater Conjunctive Use
- Water Transfer with Modesto Irrigation District (MID) / Turlock Irrigation District (TID)

The SFPUC has provided a projection of water supply reliability. The “Projected System Supply Reliability Based on Historical Hydrologic Period” (letter from P. Kehoe dated February 22, 2010), presents the projected RWS supply reliability under a range of hydrologic conditions and takes into account the impacts of climate change as SFPUC currently understands them.³ This letter is included in Appendix B.

The reliability projections assume that the wholesale customers purchase 184 MGD from the RWS through 2030 and that SFPUC implements the dry-year water supply projects included in the WSIP. The projections represent the wholesale share of available supply during historical water year types per the Tier One WSAP. The projections do not reflect any potential impact to RWS yield from the additional fishery flows required as part of Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project, which are described below.

SFPUC has translated these dry year projections into reductions to the total 184 MGD water supply available to its wholesale customers. SFPUC’s projections indicate that a 10 percent system-wide reduction in supply will occur in a single dry year and up to a 28 percent system-wide reduction will occur in the second and third years of a multiple dry year scenario. This is slightly higher than the mathematical relationship between predicted “average” and “dry years” and reflects some ability to manage dry conditions through system storage.

³ See MPMWD UWMP for additional discussion.

Table 3.3 illustrates the anticipated reductions in service reliability that could be experienced by MPMWD when wholesale supplies are reduced during single dry and multiple dry water years.

Table 3.3 – SFPUC Reliability – Historical Conditions

Water Supply Sources	Average/Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years		
			Year 1	Year 2	Year 3
San Francisco PUC (to customers) (AFY)	206,121	170,946	170,946	148,429	148,429
Percent of Average/Normal Year		83%	83%	72%	72%
MPMWD Supply (AFY)	4,993.0	4,140.9	4,140.9	3,595.5	3,595.5
MPMWD Percent of Average/Normal Year		83%	83%	72%	72%

3.1.4.1 Impact of Recent SFPUC Actions on Dry Year Reliability of SFPUC Supplies

When it adopted the project specific approvals for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project, which are part of the WSIP, the SFPUC committed to providing fishery flows below Calaveras Dam and Lower Crystal Springs Dam, as well as bypass flows below Alameda Creek Diversion Dam (ACDD). Together, the fishery flow schedules represent a potential decrease in available average annual water supply of 7.4 MGD or 3.9 MGD on Alameda Creek and 3.5 MGD on San Mateo Creek. This could slightly increase the SFPUC’s dry-year water supply needs and may result in a need for additional reductions in demand, increases in rationing, or a supplemental supply, each of which are described below. If these supply reductions do occur, they would be temporary. Completion of the WSIP in 2018 will result in design reliability and no more than 20 percent shortfalls.

The potential shortfall related to the fishery flow schedule for the Lower Crystal Springs Dam Improvements Project could begin in 2013. The potential shortfall related to the fishery flow schedule for the Calaveras Dam Replacement Project could begin in 2015.

3.1.4.2 Increase in Supply Rationing

The adopted WSIP provides for a dry year water supply program that, when implemented, would result in system-wide rationing of no more than 20 percent. The Programmatic Environmental Impact Report (PEIR) for the WSIP identified the following drought shortages during the design drought; 3.5 out of 8.5 years at 10 percent rationing and three out of eight and one-half years at 20 percent.

If the SFPUC did not develop a supplemental water supply in dry years to offset the effects of the fishery flows on water supply, rationing would increase during dry years. If the SFPUC experiences a drought between 2013 and 2018, in which rationing would need to be imposed, rationing would increase by approximately one percent in shortage years. Reduced flows for fisheries could require supply rationing to increase from 20 to 21 percent if the maximum design drought occurs between the years 2013 and 2018. After 2018, completion of the WSIP would provide for the reliability goal of system-wide supply rationing of no more than 20 percent.

3.1.4.3 Supplemental Supply

The SFPUC may be able to manage the water supply loss associated with the fishery flows through the following actions and considerations:

- Development of additional conservation and recycling;
- Development of additional groundwater supply;
- Water transfers from MID or TID;
- Increase in Tuolumne River supply;
- Revising the Upper Alameda Creek Filter Gallery Project capacity⁴; and
- Development of a desalination project.

3.1.4.4 Meeting the Level of Service Goal for Delivery Reliability

The SFPUC has stated a commitment to meeting its contractual obligation to its wholesale customers of 184 MGD and its delivery reliability goal of 265 MGD with no greater than 20 percent rationing in any one year of a drought. The Commission is working closely with its staff to develop strategies for meeting the service goal for delivery reliability. In Resolution No. 10-0175 adopted by the Commission on October 15, 2010, staff was directed to provide information on how SFPUC has the capability to attain its water supply levels of service and contractual obligations. This directive was in response to concerns expressed by the Commission and the Wholesale Customers regarding the effect on water supply of the instream flow releases required as a result of the Lower Crystal Springs Dam Improvement Project and the Calaveras Dam Replacement Project.

While the SFPUC has a projected shortfall of available water supply to meet its Level of Service goals and contractual obligations, the SFPUC has stated that current decreased levels of demand keep this from being an immediate problem. Table 3.4 documents this trend in demand reduction.

Table 3.4 – Recent Delivery Trends in SFPUC Service Area (MGD)

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Total Deliveries (MGD)	247.5	257	254.1	243.4	225.2

Reference: SFPUC FY09-10 J-Table Line 9 “Total System Usage” plus 0.7 mgd for Lawrence Livermore National Laboratory use and 0.4 mgd for Groveland. No groundwater use is included in this number. Unaccounted-for-Water is included.

⁴ The adopted WSIP included the Alameda Creek Fishery Enhancement project, since renamed the Upper Alameda Creek Filter Gallery (UACFG) project, which had the stated purpose of recapturing downstream flows released under a 1997 California Department of Fish and Game Memorandum of Understanding (MOU). Implementation of the UACFG project was intended to provide for no net loss of water supply as a result of the fishery flows bypassed from ACDD and/or released from Calaveras Dam. At the time the PEIR was prepared, the UACFG was described in the context of recapturing up to 6,300 AFY. The UACFG will undergo a separate CEQA process in which all impacts associated with the project will be analyzed fully.

However, in the near future, the SFPUC must resolve these issues. Various activities are underway by the SFPUC to resolve the shortfall problem. SFPUC has reported regularly on future water supply and demand balances, most recently in its 2012 Water Supply Development Report (December 3, 2012). In that report, SFPUC documented that it had implemented the Harding Park Recycled Water Project and was nearing completion on its Sharp Park Recycled Water Project, bringing new non-potable water supplies into the service area. The 2012 Water Supply Development Report also documents planning progress made by BAWSCA.

The 2012 Water Supply Development Report indicates that projected demands can be met with available supplies and will total less than 265 MGD in 2035. While this report supports the near-term reliability of the system, SFPUC continues to acknowledge the need to develop alternative supply strategies to make up for the instream flow reductions losses and to meet long-term demands beyond the 2018 ISL deadline.

3.2 Bay Area Water Supply and Conservation Agency

BAWSCA was created on May 27, 2003, to represent the interests of the 26 agencies that purchase water on a wholesale basis from the San Francisco RWS. MPMWD is a member of BAWSCA, which is the only entity that has the authority to directly represent the needs of the wholesale customers that depend on the RWS. BAWSCA also has the authority to coordinate water conservation, water supply and water recycling activities for its member agencies; acquire water and make it available to other agencies on a wholesale basis; finance projects, including improvements to the RWS; and build facilities jointly with other local public agencies or on its own to carry out the agency's purposes. There are two significant BAWSCA activities that impact MPMWD's water supply and demand projections; the Water Conservation Implementation Plan (WCIP) and the Long Term Reliable Water Supply Strategy.

3.2.1 Water Conservation Implementation Plan

In September 2009, BAWSCA completed the WCIP (http://bawsca.org/docs/WCIP_FINAL_Report.pdf). The WCIP includes 37 potential demand management activities, including 32 existing measures and five new measures that were defined and developed as part of the WCIP. It is an implementation plan for BAWSCA and its member agencies to attain the water use efficiency goals that BAWSCA's member agencies committed to in 2004 as part of the PEIR for the WSIP. The WCIP also identifies how BAWSCA member agencies can use water conservation as a way to continue to provide reliable water supplies to their customers through 2018 given the SFPUC's 265 MGD ISL. The WCIP included development of a mathematical model for each BASWCA member agencies' conservation program.

MPMWD is working with BAWSCA to implement water conservation programs. Water conservation efforts support the ISL commitments and allow each supplier to meet the 2020 water use target adopted with the 2010 UWMPs.

3.2.2 Long-Term Reliable Water Supply Strategy

BAWSCA is developing the Long-Term Reliable Water Supply Strategy (BAWSCA Strategy) to meet the projected water needs of its member agencies and their customers through 2035 and to increase their water supply reliability under normal and drought conditions. The BAWSCA Strategy is proceeding in three phases.

Phase I was completed in 2010 and defined the magnitude of the water supply issue and the scope of work for the BAWSCA Strategy. The original schedule for the BAWSCA Strategy identified January 2013 as the end of the planning phase. As a result of the significant changes in projected water demands and supply needs, which directly impact the results necessary from the BAWSCA Strategy, the schedule for completing the BAWSCA Strategy has been revised. On July 3, 2012, BAWSCA released the “Strategy Phase II A” document which presented the results of the work to date including the following three recommended actions for consideration by the BAWSCA Board:

- Complete the Reprogrammed Phase II A work and other identified work to complete the BAWSCA Strategy;
- Develop a plan for a pilot water transfer with East Bay Municipal Utility District or Santa Clara Valley Water District; and
- Update the demand and water conservation projections for BAWSCA member agencies using a common methodology.

The BAWSCA Board adopted the necessary recommendations at its meeting in September 2012. The current schedule shows completion of the BAWSCA Strategy by December 2014. The development and implementation of the BAWSCA Strategy will be coordinated with the BAWSCA member agencies and will be adaptively managed to ensure that the goals of the BAWSCA Strategy (increased normal and drought year reliability) are efficiently and cost-effectively being met.

3.3 Groundwater

MPMWD does not currently utilize groundwater, but has evaluated several well sites in order to supplement its emergency potable and fire water supply. Construction for the first of two or three wells will begin in late 2013/early 2014. As discussed in its 2010 UWMP, MPMWD has conducted a series of preliminary studies and is actively pursuing the development of a well-field that could produce up to 3,000 gallons per minute (GPM) (approximately 4.32 MGD). MPMWD plans to permit the supply as an active well field for emergency use under California Department of Public Health’s (DPH’s) rules. Emergency supplies can be used for five (5) consecutive days and for less than 15 days per year. MPMWD anticipates this supply would help it address short-term service interruptions, but would not provide long-term additional supply volume. MPMWD’s 2010 UWMP provides additional detail on the geology of the groundwater basin and studies regarding safe yield of the basin.

4 Water Demands

4.1 MPMWD's UWMP Water Demand Projection

In its 2010 UWMP, MPMWD developed demand projections taking into account anticipated growth patterns and the per capita demand reduction requirements of the SBx7-7. SBx7-7 became effective on January 1, 2010 and requires each urban water supplier to develop a baseline per capita water use (baseline) and 2015 and 2020 water use targets. The targets generally reflect a 10 percent and 20 percent reduction from the baseline, respectively.⁵

In its 2010 UWMP, MPMWD:

- Defined baseline use as 262 gallons per capita per day (gpcd), based on water use in the period from 1996 until 2005;
- Adopted a 2015 interim target of 236 gpcd; and
- Adopted a 2020 target of 210 gpcd.

In its 2010 UWMP, MPMWD acknowledged that water use in its CII class was significantly below 2005 levels, likely reflecting the effects of economic recession. The 2010 UWMP assumed that CII demands would return to 2005 levels by 2015, reflecting planned development and economic growth. Because SBx7-7 requires overall demand reductions by 2015 and 2020, MPMWD developed a water conservation strategy that balanced meeting its water use targets while acknowledging the need for economic growth.

To meet its 2015 water use targets, MPMWD calculated that it needed to achieve 0.25 MGD in demand reductions from its 2005 level. MPMWD is planning on achieving a 10 percent reduction in demand for its residential customer classes and a two percent savings in its landscape class to meet this target.

In order to meet its 2020 water use targets, MPMWD calculated it needed to achieve 0.62 MGD in demand reductions from 2005 levels. MPMWD is planning on achieving an additional nine percent reduction in demand for its residential customer classes, an additional 10 percent savings in its landscape class and a nine percent savings in its CII class between 2015 and 2020, to meet the target.

MPMWD's current demand model demonstrates that MPMWD is on track to achieve 0.36 MGD in saving, from 2005 levels, due to building code changes and its existing demand management program, illustrating that MPMWD will not only meet but exceed its 2015 target. MPMWD's 2010 UWMP indicated the need to identify three or four additional BAWSCA programs to participate in between 2015 and 2020 to achieve the 2020 target. Because the BAWSCA program includes 37 demand management measures (DMMs), MPMWD has a range of proven strategies to work with. The UWMP also identified the need to increase water conservation spending by approximately one percent per year to meet the

⁵ There are four methods for calculating water use targets and the methods may yield different results. MPMWD's 2010 UWMP provides a detailed discussion of the baseline and target calculation.

targets. MPMWD will use BAWSCA’s regional reporting process to track demand management progress on an annual basis.

Table 4.1 illustrates MPMWD’s demand projections as outlined in its 2010 UWMP. The table illustrates that within its 2010 UWMP, MPMWD planned on very modest residential growth. It anticipated only 59 new single family accounts and 24 new multi-family accounts over the 25 year planning period.

Table 4.1 – MPMWD Current & Projected Water Deliveries in 2010 UWMP

	2010		2015		2020		2025		2030		2035	
	# of Accounts	Deliveries AFY										
Single family	3,390	1,171.0	3,401	1,053.9	3,413	959.0	3,425	962.4	3,437	965.7	3,449	969.1
Multi-family	183	333.0	187	299.7	192	272.7	197	279.6	202	286.7	207	293.9
CII*	448	1,366.0	474	1,867.0	496	1,680.3	520	1,742.9	544	1,808.2	570	1,876.7
Landscape	121	436.0	121	428.0	126	400.0	126	400.0	126	400.0	126	400.0
Other	6	85.0	5	96.3	5	87.7		86.8		88.6		90.5
Total	4,148	3,391.0	4,188	3,744.9	4,232	3,399.7	4,268	3,471.7	4,309	3,549.2	4,352	3,630.2

4.2 Project Specific Water Demand Projections

4.2.1 Indoor Water Demand Projections

The Project Sponsor is proposing to develop the two proposed buildings on the site in a manner that can accommodate office or combined office/biotech/ R&D uses. The Project Sponsor has provided plans which illustrate this concept; specifically, the first floors of both buildings are designed to allow for biotech and R&D uses, whereas, the second through fourth floors are designed solely for conventional office uses. The first floor of each building also contain communal cafeteria and shower facilities that are available to all employees working in the building.

In order to estimate the water use in the buildings, separate methodologies were used for the office/cafeteria/shower areas and the areas proposed for R&D and uses. These methods are described below.

4.2.1.1 Calculation of Water Use in the Office, Cafeteria and Shower Areas

For the office, cafeteria and shower areas, water use has been developed based on building occupancy and fixture use. This methodology follows the methodology used in the 2010 California Green Building Standards Codes (Cal Green), which the City adopted effective January 1, 2012. These Codes are the adopted standard for equating building occupancy to water use, using a formula that includes occupancy, fixture flow rates, frequency of fixture use and duration of fixture use. The occupant is proposing 650 employees in each building for a total of 1300 occupants. Some of these occupants will work on the first floor in the R&D area and the remainder will work in the office areas.

The first step in estimating water use was to allocate the occupants by floor and across the proposed fixture units. This first step is presented in the top half of Table 4.2, labeled “Number of Building Occupants Using Fixture Units by Floor” and described herein. The average occupancy is calculated as 162 or 163 persons per floor ($650 / 4 = 162.5$). The analysis also assumes that there is a relatively even distribution of men and women among the work force (e.g. 81 or 82 men and 81 or 82 women per floor). On the second through fourth floors, these occupants are allocated to the various water using fixtures including lavatories, toilets, urinals, drinking fountains and sinks. Men and women are allocated slightly differently because women will not use the urinals but will use the toilets more frequently. For the first floor, occupants are not allocated to lavatories, toilets, urinals, drinking fountains or sinks because this water use is included in the square foot allowance for R&D uses described in Section 4.2.1.2. However, the first floor shower and cafeteria sinks are assumed to be available to all 650 employees in each building. This results in a total occupancy load of:

- 1300 occupants for the cafeteria and showers (all occupants of both buildings)
- 976 occupants for the lavatories and sinks (1300 less the 162 occupants of each of the first floors whose water use is accounted for in the R&D uses)
- 488 occupants for the urinals and male and female toilets (equal distribution of 976 occupants as male and female with the assumption that first floor water use is covered with R&D factor).

The second step is to develop the water use based on the calculated occupancy and fixture flow rates, fixture use and duration of use. This follows the methodology used in Cal Green’s worksheets and is illustrated in the bottom half of Table 4.2 which is labeled “Fixture Based Calculations for Office, Shower and Kitchen Uses”.

The fixture flow rates used in Table 4.2 are based on USE PA Energy Star Standard Fixtures.

The fixture durations used in Table 4.2 are brought forward from Cal Green Part 11 Chapter 8 (July 2012 Supplement), specifically WS-2, for lavatories, urinals, water closets, drinking fountains and all sinks. For the dishwashers, the duration is set at 1 cycle. The model WS-2 worksheet is included as Appendix D.

For lavatories, urinals, water closets and hand sinks, the daily number of uses by each occupant, used in Table 4.2, are also brought forward from Cal Green Part 11 Chapter 8 (July 2012 Supplement), specifically WS-2.

Cal Green does not provide set guidance for the daily number of uses associated with drinking fountains, showers or kitchen facilities. The daily number of uses for these fixtures, used in Table 4.2, has been estimated as follows:

- 10% of occupants use building showers daily
- 100% of occupants use drinking fountain once daily
- 100% of occupants use one meal place setting daily and the commercial dishwasher cleans 40 place settings per load. This results in 32.5 loads per day (1300 place settings/40 per load) and an average use of 0.025 loads per person per day (32.5 loads/1300 people)
- 50% of the occupants use the smaller kitchen sink for light rinsing daily

- 25% of the occupants use the two-chamber sink for larger cleaning activities daily.

Lavatory use can be used as an example of the calculations performed in Table 4.2. For the lavatories:

$$\text{Daily Water Use} = \text{Fixture Flow Rate} \times \text{Duration} \times \text{Number of Uses} \times \text{Occupants}$$

Fixture Flow Rate = 0.4 gallons/minute (Energy Star Standard)

Duration = 0.25 minutes/use (Cal Green Worksheets)

Number of Uses = 3/day (Cal Green Worksheets)

Occupants = 976 (1300 less the occupants of the first floors in each building)

$$\text{Daily Water Use} = 0.4 \text{ gpm} \times 0.25 \text{ minutes/use} \times 3 \text{ uses daily} \times 976 \text{ users} = 293 \text{ gallons per day}$$

Table 4.2 performs similar calculations for all the fixtures in the office, kitchen and shower area and results in a projected water use of 13.77 AFY or 0.012 MGD.

Table 4.2 –Indoor Water Usage for Office, Kitchen and Showers

Number of Building Occupants Using Fixtures by Floor (1)										
Location	Lavatory	Urinal	Water Closet - Men	Water Closet - Women	Shower (2)	Drinking Fountain	Dish Washer (2)	Kitchen Sink (2)	Kitchen Sink - Two Chamber (2)	Hand Sink
Building 1										
4th Floor	163	81	81	82	0	163	0	0	0	163
3rd Floor	163	81	81	81	0	163	0	0	0	163
2nd Floor	162	82	82	81	0	162	0	0	0	162
Ground Floor (3)	0	0	0	0	650	0	650	650	650	0
Building 2										
4th Floor	163	81	81	82	0	163	0	0	0	163
3rd Floor	163	81	81	81	0	163	0	0	0	163
2nd Floor	162	82	82	81	0	162	0	0	0	162
Ground Floor (3)	0	0	0	0	650	0	650	650	650	0
Occupancy Load for Cal Green Calculation	976	488	488	488	1300	976	1300	1300	1300	976
Fixture-Based Calculations for Office, Shower and Kitchen Uses										
	Lavatory	Urinal	Water Closet - Men	Water Closet - Women	Shower	Drinking Fountain	Dish Washer	Kitchen Sink	Kitchen Sink - Two Chamber	Hand Sink
Flow Rate (4)	0.4	0.5	1.28	1.28	2	0.4	4.5	1.8	1.8	1.8
	gpm	gpf	gpf	gpf	gpm	gpm	gallons/cycle	gpm	gpm	gpm
Duration (5)	0.25	1	1	1	5	0.25	1	4	4	0.25
	min	flush	flush	flush	min	min	cycle	min	min	min
Daily Uses (6)	3	2	1	3	0.1	1	0.025	0.5	0.25	1
Occupancy Load for Cal Green Calculation	976	488	488	488	1300	976	1300	1300	1300	976
Total Water Use in gpd (flow rate *duration*daily uses*occupancy)	293	488	625	1,874	1,300	98	146	4,680	2,340	439
									Subtotal for Office Uses in gpd	12,282
									Subtotal for Office Uses in MGD	0.012
									Subtotal for Office Uses in AFY	13.77
Notes:										
1) Based on 650 equally distributed employees in each building with 50% male and 50% female. Fixture types from applicant provided plan set THE SOBRATO ORGANIZATION - 151 Commonwealth Menlo Park - 2x 124,959 sf buildings + 5,000 sf cafeteria per building Estimate Utility Loads & Existing Service Size - Kier & Wright PN A 11089-2 - Current A/O 08 April 2013 P:\2011 Jobs\112943.Commonwealth\01-CADD\DD\ICF-EIR Comments\A130408 - Estimated utility loads incl labs and cafeteria1.doc										
2) Assumes all building occupants have access to the shower and kitchen facilities										
3) Water use from ground floor lavatories, urinals, water closets, drinking fountains & hand sinks is included in square foot value for R&D use										
4) Flow rates are based on USEPA Energy Star fixtures and appliances										
5) Durations have been brought forward from Cal Green Part 11 Chapter 8 (July 2012 Supplement)										
6) Daily uses for lavatories, urinals, water closets and hand sinks have been brought forward from Cal Green Part 11 Chapter 8. Remaining uses as follows: Showers: assume 10% of occupants use building showers Drinking Fountains: assume 100% of occupants use drinking fountain once daily Dishwasher: assume 100% of occupants use one place setting daily. Commercial dishwasher cleans 40 place settings per load. Total daily loads = 1300/40 = 32.5. Number of dishwasher loads/occupant/day = 32.5/1300 or 0/025 Kitchen Sink: Assume 50% of the occupants use the kitchen sink daily Two-chamber sink is assumed to be used for cleaning larger pots and pans after food preparation and service. Assume 25% of occupants engage in food preparation.										

4.2.1.2 Research and Development Water Use Factor

For the portion of the first floors that are anticipated to be developed in R&D uses, water use may be more intensive than that predicted by the Cal Green methodology. In order to take this into account, indoor water use for these areas has been calculated using a square footage factor of 0.155 gallons per square foot per day, which reflects the historical water use pattern for this type of facility in the City.

The first floor areas devoted to R&D uses were calculated by taking the total first floor area and subtracting the areas devoted to the cafeteria and showers, which have already been accounted for. Based on information provided by the applicant, each first floor has a total area of 31,782 square feet, the cafeterias have an area of 5,000 square feet each and the showers have an area of 306 square feet each.⁶ This results in a first floor RD area of 26,476 square feet in each building.

Table 4.3 illustrates the application of the demand factor to the first floor square footage devoted to R&D uses and results in a projected water use of 9.2 AFY or 0.008 MGD.

Table 4.3 - Indoor Water Usage for Research and Development Area

Location	Square Footage	Demand Factor (gpd/sf)*	Total Demand		
			gpd	MGD	AFY
Building 1	26,476	0.155	4,104	0.004	4.60
Building 2	26,476	0.155	4,104	0.004	4.60
Subtotal for R&D Uses	52,952		8,208	0.008	9.20

*Cal Water South San Francisco Area median water demands for R&D users - Menlo Gateway WSA 06/09

The total projected indoor water demand for the Project is the sum of these uses and is estimated to be 23 AFY or 0.020 MGD.

4.2.2 Irrigation Water Demand Projections

Landscape plans were developed for the Project and submitted by the Project Sponsor. The Project Sponsor also provided the City with the annual estimated total water use (ETWU) for the two project parcels, as required by the City’s Water Efficient Landscape Ordinance. According to the calculations provided by the Project Sponsor, the projected irrigation demand for the Project is 5.5 AFY or 0.005 MGD.

Copies of the outdoor water use efficiency checklists and calculations sheets are presented in Appendix C.

⁶ From “Conceptual First Floor Space Plan AT12.11” dated 07-17-12 and available at http://www.menlopark.org/projects/comdev_commonwealth_plans.htm.

4.2.3 Water Demand Credits

As described previously, the Project’s Jefferson parcel is currently developed with a 20,462 square foot warehouse, which will be demolished. The Jefferson parcel will be redeveloped to provide access to the Commonwealth parcel, as well as to be used as an employee recreation area including ornamental landscaping and a sports turf area.

The historical water use for the Jefferson parcel was reviewed during the preparation of this WSA. The four-year average annual water use for the Jefferson parcel from 2009 through 2012 is 259,182 gallons per year, or 0.8 AFY. That volume of water is being subtracted from the projected water demand for the Project for the purposes of calculating additional demand on the MPMWD’s supply.

The Project’s Commonwealth parcel is currently developed with a single-story industrial building and associated structures totaling approximately 217,396 square feet. The parcel development also includes irrigated landscape. The water use for this parcel dropped significantly in the years 2011 and 2012 compared to water use in previous years, due to site use changes. The water consumption at that parcel in the year 2012, when the Project Notice of Preparation (NOP) was filed, is being considered the baseline for that parcel. The 2012 use for that parcel was 6.7 AFY or 0.006 MGD. That volume of water is being subtracted from the projected water demand for the Project for the purposes of calculating net projected water demand.

4.2.4 Summary of Project Water Demands

Based on the Project Description and in order to allow for maximum flexibility in future development and buildout, the Project’s water demand has been calculated assuming office uses on floors two through four of both buildings and R& D uses on the first floors of both buildings. The Project’s total demand for indoor and outdoor water use combined is estimated to be 28.5 AFY, including 23 AFY for indoor uses, 4.0 AFY for landscape use on the Commonwealth site and 1.5 AFY for outdoor use on the Jefferson site. With the 0.8 AFY credit for existing water use on the Jefferson site, and 6.7 AFY credit for existing water use on the Commonwealth parcel, the total new (net) demand on MPMWD’s supply is 21 AFY or approximately 0.02 MGD. This calculation is summarized in Table 4.4

Table 4.4 – Adjusted Project Water Demands

Use Category	Gallons Per Year	AFY	MGD
Total Indoor Water Use	7,478,839	23.0	0.020
Landscape Water Use, Commonwealth Drive	1,291,692	4.0	0.004
Landscape Water Use, Jefferson Drive	485,910	1.5	0.001
Water Use Credit, Commonwealth Credit	-2,171,444	-6.7	-0.006
Water Use Credit, Jefferson Credit	-259,182	-0.8	-0.001
Total Demand	6,825,815	21.0	0.019

Based on information provided by the Project Sponsor, it is assumed that the Project will be completed in 2015 and that the water demand for the Project will remain consistent for the UWMPs planning horizon, as illustrated below in Table 4.5.

Table 4.5 – Project's Water Demands (AFY)

Planned Water Use	Totals (GPY)	2015	2020	2025	2030	2035
Total Indoor Water Use	7,478,839	23.0	23.0	23.0	23.0	23.0
Landscape Water Use, Commonwealth Drive	1,291,692	4.0	4.0	4.0	4.0	4.0
Landscape Water Use, Jefferson Drive	485,910	1.5	1.5	1.5	1.5	1.5
Water Use Credit, Commonwealth Drive	(2,171,444)	-6.7	-6.7	-6.7	-6.7	-6.7
Water Use Credit, Jefferson Drive	(259,182)	-0.8	-0.8	-0.8	-0.8	-0.8
Total	6,825,815	21.0	21.0	21.0	21.0	21.0

4.3 Additional Approved Demands

4.3.1 Menlo Gateway Project

The City has already approved a WSA for the Menlo Gateway Project⁷. That WSA included a “first phase” demand projection 46 AFY (0.041 MGD) associated with a specific development proposal and a “build out” demand projection of 153 AFY (0.137 MGD). The “build out” demand projection assumed the Menlo Gateway site is developed to its full allowable potential. Table 4.6 presents the projected water uses to year 2035 associated with both Phase 1 and Maximum Allowable Development at the Menlo Gateway Project site.

Table 4.6 – Menlo Gateway Project Demands (AFY)

Planned Water Use Menlo Gateway	2015	2020	2025	2030	2035
Menlo Gateway Project	46	46	46	46	46
Additional Allowable	107	107	107	107	107
Total	153	153	153	153	153

4.3.2 Facebook Campus Project

The City has already approved a WSA for the Menlo Park Facebook Campus Project⁸. The Facebook Campus Project includes both the 57-acre East Campus, as well as the 22-acre West Campus, located in the City adjacent to Highway 84 and east of US 101. The Project is phased in nature, with the first phase including occupation of the previously developed East Campus, followed by the second phase which includes construction of a new approximately 433,555 square foot building at the West Campus.

Table 4.7 presents the projected water uses to year 2035 associated with both the East and West Campuses.

⁷ Water Supply Assessment for the Menlo Gateway Project (PBS&J, 2009)

⁸ Water Supply Assessment for the Menlo Park Facebook Campus Project (Winzler & Kelly, 2011).

Table 4.7 – Facebook Campus Project Water Demands (AFY)

Planned Water Use - Facebook	2015	2020	2025	2030	2035
East Campus	54.00	54.00	54.00	54.00	54.00
West Campus	32.70	65.40	65.40	65.40	65.40
Total	86.70	119.40	119.40	119.40	119.40

4.3.3 City of Menlo Park Housing Element Update

The City has already approved a WSA for its Housing Element Update⁹. Because the Housing Element Update proposed new housing throughout the City, it affected the demand projections for both the Cal Water and MPMWD service areas. The WSA for the Housing Element Update reviewed two potential implementation scenarios. Scenario 1 assumed that the Housing Element Update would be implemented in a manner that maximized future demands on MPMWD’s system and Scenario 2 assumed the Housing Element Update would be implemented in a manner that maximized the future demands on Cal Water’s system. This WSA includes review of Housing Element Update Scenario 1, in order to review MPMWD’s water supply in light of the maximum potential demand.

Housing Element Update Scenario 1 assumes 1,015 new residential units in the MPMWD service area including 900 units as a result of rezoning and 115 second units. The total water demand from these units is 118.2 AFY (0.11 MGD). The City plans to implement its Housing Element Update by 2035. Table 4.8 illustrates the maximum demand associated with the Housing Element Update on MPMWD’s service area.

Table 4.8 – Housing Element Update Water Demands (AFY)

Planned Water Use -Housing Element Update	2015	2020	2025	2030	2035
New MFR Use	76.1	87.4	98.7	110	118.2
Total MFR Use included in Housing Element WSA	375.8	357.4	371.4	382.7	390.9

4.4 Comparison to the 2010 UWMP

Within the 2010 UWMP, MPMWD projected water use for the Single Family Residential (SFR), Multi-family Residential (MFR), CII, Landscape and “Other” Classes. This section presents the comparison between the projections in the 2010 UWMP and the projections included in the various WSAs. The sufficiency analysis, presented in Chapter 5 will be based upon the 2010 UWMP or approved project projections, if they are higher than the projections made in the 2010 UWMP.

4.4.1 Single Family Residential Sector

The City has not adopted any WSAs for the SFR sector. The sufficiency analysis will be based on the 2010 UWMP, which assumed very modest growth and aggressive conservation activities for this sector.

⁹ Water Supply Assessment for the City of Menlo Park Housing Element Update (GHD, 2013)

4.4.2 Multi-family Residential Sector

As described above, the Housing Element Update resulted in increased growth projections for the MFR sector. The sufficiency analysis will be based on the total projected MFR demand in the Housing Element WSA.

4.4.3 Commercial Industrial and Institutional Sector

In its 2010 UWMP, MPMWD projected that demands in the CII sector would increase from 1,366.0 AFY (1.219 MGD) in 2010 to 1,876.7 AFY (1.675 MGD) in 2035, an increase of 510.7 AFY or 0.456 MGD. The Project will result in a net increase of 21 AFY (0.02 MGD). The Menlo Gateway Project will add a demand of 153 AFY (0.137 MGD). The Facebook Campus Project will add a demand of 119.4 AFY (0.107 MGD). Together these three projects add a total of 293.4 AFY (0.26 MGD) which is within the CII sector's projected growth as described in the 2010 UWMP. Table 4.9 illustrates the comparison between the 2010 UWMP and the approved projects for the CII Sector. Because the Project, together with other approved projects, falls within the water use allowance made for the CII sector in the 2010 UWMP, the sufficiency analysis in Chapter 5 will be based on the total 2010 UWMP projections. When the UWMP was completed, projections were required to the year 2030. Projections that were made beyond that to 2035 were optional additions included by the City.

Table 4.9 – CII Sector Water Use – Comparison to 2010 UWMP (AFY)

	2010	2015	2020	2025	2030	2035
Total 2010 UWMP Projections - CII Sector	1,366.0	1,867.0	1,680.0	1,742.9	1,808.2	1,876.7
Projected CII Demands - Approved & Pending Projects						
Existing Demands	1,366.0	1,366.0	1,366.0	1,366.0	1,366.0	1,366.0
Menlo Gateway	0	153.0	153.0	153.0	153.0	153.0
Facebook	0	86.7	119.4	119.4	119.4	119.4
Commonwealth (Project)	0	21.0	21.0	21.0	21.0	21.0
Subtotal	1,366.0	1,626.7	1,659.4	1,659.4	1,659.4	1,659.4
Surplus (Deficit) CII Sector Allowance	0	240.3	20.6	83.5	148.8	217.3

4.4.4 Landscape and Other Sectors

The City has not adopted any WSAs that deal specifically with the Landscape or Other sectors, although new landscape demands have been accounted for in the adopted WSAs for the MFR and CII sectors. The sufficiency analysis will be based on the 2010 UWMP, which assumed very modest growth and aggressive conservation activities for in the landscape sector.

Table 4.10 summarizes and compares the demands included in the 2010 UWMP and the demands that will be used in this sufficiency analysis.

Table 4.10 - Comparison of Total Water Use 2010 UWMP and this WSA

	2015	2020	2025	2030	2035
Total 2010 UWMP Projections					
Single Family Residential	1053.9	959	962.4	965.7	969.1
Multi-Family Residential	299.7	272.2	279.6	286.7	293.9
CII	1,867.0	1,680.0	1,742.9	1,808.2	1,876.7
Landscape	428.0	400.0	400.0	400.0	400.0
Other	96.3	87.7	86.8	88.6	90.5
Total	3,744.9	3,398.9	3,471.7	3,549.2	3,630.2
Demand Projections for this WSA					
Single Family Residential (1)	1,053.9	959.0	962.4	965.7	969.1
Multi-Family Residential (2)	375.8	357.4	371.4	382.7	390.9
CII (3)	1,867.0	1,680.0	1,742.9	1,808.2	1,876.7
Landscape (1)	428.0	400.0	400.0	400.0	400.0
Other (1)	96.3	87.7	86.8	88.6	90.5
Total	3,821.0	3,484.1	3,563.5	3,645.2	3,727.2

(1) From 2010 UWMP

(2) Includes increased demands from Housing Element WSA Scenario 1.

(3) Includes all approved WSAs and Project demands which fall within UWMP allowance.

4.5 Demand Management

MPMWD is a member of the BAWSCA and through that agency participates in a well-developed regional water conservation program that focuses on a wide range of innovative conservation strategies.

MPMWD is not a signatory to the California Urban Water Conservation Council's (CUWCC's) MOU and it does not implement CUWCC's Best Management Practices (BMPs). MPMWD implements demand management measures consistent with BAWSCA's program.

In 2008, BAWSCA began the preparation of its WCIP. This in-depth effort outlined current and planned conservation strategies for each of the member agencies and had two primary goals:

- To develop an implementation plan for BAWSCA and its member agencies to attain the water efficiency goals that the agencies committed to achieving in 2004 as part of the Program EIR for SFPUC's WSIP; and
- To identify how BAWSCA member agencies could use water conservation as way to continue to provide reliable water supplies to their customers through 2018 given the 184 MGD ISL.

The WCIP included an analysis of 32 existing demand management measures and five "New Measures" defined during the development of the WCIP. The analysis was performed using the proprietary *Demand Side Management Least Cost Planning Decision Support System* or DSS Model, which prepared 30-year total water demand projections. This enables a more accurate assessment of the impact of water

efficiency programs on demand. For each measure, the DSS Model also performed a benefit cost analysis using net present value and benefit-to-cost ratio as economic factors.

From this analysis, BAWSCA and its member agencies developed “Core” and “Subscription” conservation activities. BAWSCA undertakes these activities on behalf of its members which results in coordinated regional messaging and implementation regarding water conservation. BAWSCA has worked, and continues to work, to secure grant funding to assist in these activities. As described in Section 4.1, MPMWD committed to undertaking nine of the 32 “existing measures” and will work with BAWSCA on developing the five “New Measures.” In its 2010 UWMP, MPMWD demonstrated that these activities, plus changes in building and plumbing codes, will allow it to exceed its 2015 SBx7-7 target. In its 2010 UWMP, MPMWD identified the need to implement three or four measures beyond the existing nine it is currently undertaking, in order to meet its 2020 SBx7-7 target.

As described in Section 4.1 above, while the WCIP did not focus specifically on SBx7-7 compliance, it provides both the policy framework and analytical basis for BAWSCA member agencies to implement demand management measures and track their progress with respect to targets and goals.

5 Sufficiency Analysis & Conclusions

5.1 Sufficiency Analysis

SB 610 requires that the Lead Agency make findings related to supply sufficiency under the normal, single dry and multiple dry year planning scenarios.

The adopted WSIP provides for a dry year water supply program that, when implemented, would result in system-wide rationing of no more than 20 percent. Based on the hydrologic record presented in Appendix B, the SFPUC projects a 10 percent system-wide reduction in supply will occur in a single dry year and a 20 percent system-wide reduction will occur in multiple dry years. As described in Section 3, these reductions are allocated according to a two part formula. The Tier One formula allocates reductions on a straight-line basis between the SFPUC and its wholesale customers. For example, in a single dry year, SFPUC would receive a 10 percent reduction and the wholesale customers would receive a 10 percent reduction. The Tier Two formula, which is administered by BAWSCA, allocates the wholesale customer's reduced supply to each customer. This Tier Two allocation is based on a formula that takes multiple factors for each wholesale customer into account, including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

As the wholesale customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each wholesale customer will also change. Recent Tier Two calculations have indicated that MPMWD would receive slightly less water than a straight-line allocation would suggest (i.e., a 10 percent system wide reduction in the SFPUC supply would result in more than a 10 percent reduction for MPMWD).

While the demands associated with this Project fall within the CII demand projection allowance made in MPMWD's 2010 UWMP, overall demands on the system have increased because of increased residential units proposed by the City's Housing Element Update. Therefore, this chapter presents a revised analysis taking into account the Project and the additional approved demands outlined in Table 4.10.

Comparisons of supply and demand under normal and single dry years are included in Tables 5.1 through 5.2 below. These tables demonstrate that the supply exceeds the projected demand, indicating that MPMWD will not experience water shortages in normal or single dry years over the 20 year planning period.

Table 5.1 – Supply and Demand Comparison – Normal Year (AFY) (including Housing Scenario 1)

	2015	2020	2025	2030	2035
Supply Totals	4,993.0	4,993.0	4,993.0	4,993.0	4,993.0
Demand Totals	3,821.0	3,484.1	3,563.5	3,645.2	3,727.2
Difference (supply minus demand)	1,172.0	1,508.9	1,429.5	1,347.8	1,265.8
Difference as % of Supply	23%	30%	29%	27%	25%
Difference as % of Demand	31%	43%	40%	37%	34%

Table 5.2 –Supply and Demand Comparison – Single Dry Year (AFY) (including Housing Scenario 1)

	2015	2020	2025	2030	2035
Supply Totals	4,140.9	4,140.9	4,140.9	4,140.9	4,140.9
Demand Totals	3,821.0	3,484.1	3,563.5	3,645.2	3,727.2
Difference (supply minus demand)	319.9	656.8	577.4	495.7	413.7
Difference as % of Supply	8%	16%	14%	12%	10%
Difference as % of Demand	8%	19%	16%	14%	11%

Table 5.3 provides a summary of the multiple dry year supply and demand comparisons. The 2010 UWMP documented that water supply was adequate to meet demands in the first multiple dry year, but that in the second and third dry years MPMWD could experience a water shortage of up to four percent until the year 2015. The UWMP further states that after 2015, the demand management required by SBx7-7 is generally sufficient to assure that demands do not exceed supply in the multiple dry year scenarios until after 2030.

While the Project’s projected demand falls within the 2010 UWMP’s allowance for the CII sector, the total demand on MPMWD’s water supply has been increased because of the Housing Element Update. This total increase is modest and is not sufficient to significantly impact the MPMWD’s supply sufficiency. Based on the most current land use proposals, including the Project and Housing Element Update, it is estimated that there would still be adequate supply to meet demands in the first year of a multiple year drought scenario. If a multiple dry year scenario occurs before 2015, it is projected that there could be a supply deficiency up to six percent, a slight increase from the four percent projected in the 2010 UWMP. This increase is a result of the additional demands from the Housing Element Update, not from implementation of the Project. After 2015, the combination of supply improvements and demand reductions results in sufficient supply under all hydrologic conditions through 2025. After 2025, it is estimated that demand could exceed supply by up to four percent, a slight increase from the one percent projected in the 2010 UWMP and again resulting from the increased demands associated with the Housing Element Update, not the specific Project demands.

The demands applied in single dry and multiple dry years reflect the impacts of the MPMWD’s conservation program, but not additional demand reduction that could be achieved by implementation of MPMWD’s Drought Contingency Plan. This plan, which is described in the 2010 UWMP, outlines measures that will allow MPMWD to reduce demands by up to 50 percent in the case of drought or

emergency. This plan will be implemented, if necessary, to manage the predicted shortages in multiple dry years.

**TABLE 5.3 – MPMWD PROJECTED SUPPLY & DEMAND COMPARISON DURING MULTIPLE DRY YEAR
(INCLUDING HOUSING SCENARIO 1)**

		2015	2020	2025	2030	2035
Multiple Dry Year First Year Supply	Supply Totals	4,140.93	4,140.9	4,140.9	4,140.9	4,140.9
	Demand Totals	3,821.00	3,484.10	3,563.50	3,645.20	3,727.20
	Difference (supply minus demand)	319.93	656.8	577.4	495.7	413.7
	Difference as % of Supply	0.08	16%	14%	12%	10%
	Difference as % of Demand	0.08	19%	16%	14%	11%
Multiple Dry Year Second Year Supply	Supply Totals	3,595.50	3,595.5	3,595.5	3,595.5	3,595.5
	Demand Totals	3,821.00	3,484.1	3,563.5	3,645.2	3,727.2
	Difference (supply minus demand)	(225.50)	111.4	32.0	(49.7)	(131.7)
	Difference as % of Supply	-6%	3%	1%	-1%	-4%
	Difference as % of Demand	-6%	3%	1%	-1%	-4%
Multiple Dry Year Third Year Supply	Supply Totals	3,595.50	3,595.5	3,595.5	3,595.5	3,595.5
	Demand Totals	3,821.00	3,484.1	3,563.5	3,645.2	3,727.2
	Difference (supply minus demand)	(225.50)	111.4	32.0	(49.7)	(131.7)
	Difference as % of Supply	-6%	3%	1%	-1%	-4%
	Difference as % of Demand	-6%	3%	1%	-1%	-4%

5.2 Capital Outlay and Permits Necessary to Accomplish the Program

Future water projects that will likely increase (improve) reliability of supplies for the City include:

- SFPUC’s WSIP projects which are approved, funded, designed and scheduled to be complete by 2030;
- Projects that may develop through BAWSCA’s Strategy which are scheduled to be identified and completed by 2018; and
- MPMWD’s local groundwater development project which is scheduled to be completed by 2020.

While BAWSCA’s Strategy and MPMWD’s local groundwater program could result in additional water supply in the future, this WSA does not assume any water supply from these sources.

5.3 Regulatory Requirements for Delivery of Water Supply

MPMWD complies with all current regulatory standards. It will continue to monitor its system in accordance with its permit from the DPH.

5.4 Conclusions

In its 2010 UWMP, MPMWD projected that demands in the CII sector would increase from 1,366.0 AFY (1.219 MGD) in 2010 to 1,876.7 AFY (1.675 MGD) in 2035, an increase of 510.7 AFY or 0.456 MGD. The Project will result in a net increase of 21 AFY (0.02 MGD). The Menlo Gateway Project will add a demand of 153 AFY (0.137 MGD). The Facebook Campus Project will add a demand of 119.4 AFY (0.107 MGD). Together these three projects add a total of 293.4 AFY (0.26 MGD), which is within the CII sector's projected growth as described in the 2010 UWMP.

Under normal and single dry year conditions, MPMWD's supplies are sufficient to meet the Project demands together with the demands of the previously proposed projects with approved WSAs. Under multiple dry year scenarios, supply slightly exceeds demand in the first year of a multiple dry year scenario. In the second and third years demand exceeds supply by four to six percent over the course of the 20 year planning period.

MPMWD has a water shortage contingency plan in place that allows it to achieve demand reductions of up to 50 percent. Therefore, any reductions that could be required to manage supply restrictions in multiple year droughts can be achieved by MPMWD.